selective action on nervous tissues renders it more useful in the treatment of cerebrospinal syphilis than other arsenical preparations.

3. Wassermann-fast patients which have been resistant to the usual methods of treatment have shown a marked improvement under the combined treatment of intravenous bismuth and iodin, in conjunction with diathermy.

4. Therapeutic fever created by diathermy is considered superior to malaria treatment in that the fever can be controlled. No serious sequelae have followed its use in selected cases.

5. The combined treatment of tryparsamid, iodin and bismuth intravenously, in conjunction with therapeutic fever created by diathermy, has produced remarkable results. Physical improvement and mental activity have given these patients an optimistic outlook on life and has helped to transform them from potential public charges to useful citizens.

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REFERENCES

1. Garrison. History of Medicine, p. 676, 1922.

2. Casten, V. Tryparsamid Amblyopia Treated by "Forced Drainage" of the Cerebrospinal Fluid. New England J. of Med., p. 676 et seq., April 3, 1930.

3. J. Exper. Med., Abstract, p. 982, March 1930.

4. Biach, M. Iodin Metabolism and Thyroid Gland Their Relation to the Course of Syphilis. Wien. klin. Wchnschr., Vienna, xliii, 528, 1930.

5. Woods, A. C., and Moore, J. E. Visual Disturbances Produced by Tryparsamid. J. A. M. A., lxxxii, 2105, June 28, 1924.

6. Brown and Pearce. J. Exper. Med. xxx, p. 417 et seq., 1919.

7. J. A. M. A., Abstract, lxxxiii, p. 888 et seq., 1924.

8. Wagner von Juaregg. The Treatment of General Paresis by Inoculation of Malaria. J. Nerv. and Ment. Dis., lv, 369-375, 1922.

9. Lafora, Gonzalo R. Postmalarial Hallucinosis in General Paralysis. Siglo. Med., Madrid, lxvii, 349, 1930.

10. Stephenson, C. S., and Love, J. Malarial Treatment of Cerebrospinal Lues. U. S. Nav. M. Bull., p. 376 et seq., April 1930.

11. Carpenter, C. M., and Boak, R. A. The Effect of Heat Produced by an Ultra-High Frequency Oscillator on Experimental Syphilis in Rabbits. Am. J. Syph., xvi, p. 346, 1930.

12. King, J. C., and Cocke, E. W. Therapeutic Fever Produced by Diathermy, with Special Reference to Its Application in the Treatment of General Paralysis. South. M. J., xxiii, p. 222 et seq., March 1930.

13. Langer, Erich. Therapy-Resisting Syphilis. Therap. d. Gegenw., Berlin and Vienna, lxxxi, p. 118, 1930.

14. McBride, W. L., and Denny, C. C. The Treatment of Arsphenamin Dermatitis and Certain Other Metallic Poisons. Arch. Dermat. and Syph., vii, 1923.

15. Fordyce, J. A., and Myers, C. N. Quantitative Study of Penetration of Arsenic into the Spinal Fluid After Intravenous Injection of Tryparsamid. Am. J. Syph., ix, pp. 490-501, July 1925.

16. Grenet, Drouin, and Richon. Bull. Acad. de Med., Paris, lxxxvii, 658, 1922.

17. Ritter, Professor H., and Karrenburger, Dr. C. L. The Value of Bismuth in the Treatment of Syphilis. Lancet, p. 971, November 9, 1929.

VISUAL REQUIREMENTS FOR AUTOMOBILE DRIVERS

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THE ever-increasing number of automobile accidents in this country and others has attracted the attention of workers in all fields who have studied the problem with the hope of being able to offer suggestions for its reduction. Among those responsible for the regulations affecting automobile drivers should be the oculists, as good vision is a particularly necessary quality for the proper conduction of a motor-driven vehicle.

While it is true that factors such as fatigue, the emotional make-up of an individual, his state of mind, and the condition of the weather are of great importance in the causation of accidents, it would seem that under otherwise similar conditions a person with good vision would be less likely to have an accident than one not possessing it. Of course, the argument has been advanced that a person who is afflicted with poor vision is made more cautious by the knowledge of his shortcomings, but we who practice medicine and who too often see people eat food which they know will make them ill, are not tempted to believe that the care exercised by an unfit driver would offset the danger caused by the defect. To most oculists the obvious conclusion is that regulation of automobile drivers with regard to their visual acuity would be desirable, but the manner in which to determine this is difficult to decide. Germany and certain other countries have a compulsory medical examination, which would have to be repeated every few years, and therefore would hardly be practicable in this country on account of the great number of drivers.

REPLIES TO A STATE QUESTIONNAIRE

A letter was sent to each state motor vehicle department this year by the writer to ascertain just what steps had already been taken to work out this problem in the United States. Answers were received from forty-five states. Of this number the following thirty-three had no visual requirements for nonprofessional drivers: Arizona, Arkansas, Colorado, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Mexico, Ohio, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Utah, Virginia, Washington, Wisconsin, and Wyoming.

Visual Acuity.—The state of Delaware has the most stringent requirement of a visual acuity of 20/30 in both eyes, or 20/20 in one eye. Vermont and Pennsylvania both demand 20/70 with both eyes, while Connecticut asks 20/70 in each eye, and Rhode Island 20/70 in one eye. New Jersey requires 20/50 in each eye, while California only requires 20/50 with both eyes. The attempt

was first made in California to demand 20/30 with both eyes but so many drivers were thus excluded that the limit was lowered to 20/50. In New York a driver must have 20/40 vision with both eyes together. In Washington, D. C., the officials merely stated that acuity and color vision are tested, without giving details. In West Virginia the applicant is only asked if his sight is good.

Visual Fields.—We meet the first mention of fields in the requirement of Massachusetts and Maryland. The former demands 20/70 vision with both eyes, a 120-degree field, and recognition of red, green, and yellow colors. Maryland asks 20/70 vision in each eye, or if one has less than 20/70, the other must have 20/40. A one-eyed individual may drive if he has 20/30 vision and has his car equipped with suitable mirrors. California is also contemplating the introduction of a visual field test.

A digression is made here to quote verbatim from the letter from the Maryand authorities in order to point out the necessity for oculists to take an interest in this work. It runs as follows: "Each rejected applicant *must* go to an *optometrist* of his own choosing." The italics are the writer's, but the quotation is exact. No doubt the expression "optometrist" was meant to include "oculists," but our state officials should be informed as to the limitations of that term.

EUROPEAN STANDARDS

This problem of the visual examination of automobile drivers was discussed at the Thirteenth International Congress of Ophthalmology at Amsterdam. Professor Weekers of Liege presented a set of requirements which have been more or less approved by those interested in the subject and which seem to be quite reasonable. These were as follows:

1. Visual acuity, after correction, of at least 20/40 in one eye, and 20/200 in the other. If a person blind in one eye has been so for at least one year and has a visual acuity of 20/25 in the other he is acceptable.
2. Normal visual field in one eye.
3. No diplopia.
4. No marked diminution in light sense.

I should personally be in favor of making the lower limit of the better eye 20/50, where the field of vision is normal. Otherwise, these figures as presented by Weekers seem entirely adequate.

It is quite obvious that a normal or nearly normal field is quite important in the conduction of an automobile, and the examination of the light sense cannot be omitted if one wishes to reduce the accidents occurring after nightfall. A hemeralopic individual is a dangerous driver at night and may not realize himself what his condition is.

A one-eyed individual should be capable of driving after he has become accustomed to his defect, provided he has normal vision and field in his single eye. Weekers reports four accidents involving one-eyed individuals in his locality and himself is not in favor of licensing them, but states that the majority of opinion is against him.

PROPOSED PLAN FOR EXAMINATIONS

The plan proposed by several workers in this field, including Weekers and Patry, to put these requirements into effect is one which could be applied in this country.

When a driver applies for a license, he is given a copy of the visual requirements. I would also suggest that he have access at this time to a plainly marked test chart so that he could test his own visual acuity. Now, if he so desires, he can go to his oculist and assure himself that he meets these requirements. Whether he does this or not he must sign an application, stating that he believes that he meets the visual requirements as outlined. He agrees to submit to a medical examination if he is involved in an accident. If at this time he is found to be lacking in any of the requirements, he is to lose his license to drive. He thus also lays himself open to civil suit in admitting his defect. Patry would only have him lose his license if he were responsible for the accident. But it would be simpler to revoke the license of any defective individual even involved in an accident, as the responsibility is often difficult to place.

A clause in the application favored by Patry permits the applicant to drive even though he knows he does not meet the requirements, and this cautions him to be careful as he will lose his license if involved in an accident. If the requirements are as low as 20/50 in the poorer eye, I do not think it advisable to encourage those who cannot meet them to drive, even if they use extreme care. I think rather it should be impressed upon those not meeting the requirements that they should not drive, and the legal penalty for one found involved in and responsible for an accident who cannot pass the requirements should be a loss of his license to drive as a minimum penalty, with a maximum penalty of a jail sentence. Otherwise many drivers not meeting the requirements would take a chance.

The fact that the oculist would not have to sign a paper to get his patient a license would prevent him from being imposed upon to falsely certify as to drivers' visions, particularly of drivers who were his friends. He could tell them the truth as to whether they met the requirements or not, and the responsibility of their driving would then rest entirely upon their own shoulders. And that is where it rightfully belongs.

The medical requirements other than ocular could be arranged in like manner. The placing of the responsibility for knowing his condition upon the driver's shoulders would tend to make him more careful. Should a driver not meeting the requirements attempt to drive anyhow, he would be doubly careful, as the loss of a driver's permit is a serious matter in this day of automobiles.

SUMMARY

From a survey of the figures obtained from forty-five of these United States one can readily

see that there is much room for improvement in the system now used, and that there is a crying need for some uniform visual requirements for drivers of automobiles. The writer would urge the adoption of Professor Weekers' suggestions, modified to a lower limit of 20/50 in the better eye, with a type of enforcement placing the responsibility for knowing his eligibility upon the driver himself.

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GONORRHEA IN THE FEMALE*

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DISCUSSION *by H. G. Mehrtens, M. D., San Francisco; William Henry Gilbert, M. D., Los Angeles; R. Glenn Craig, M. D., San Francisco.*

THE treatment of gonorrhea in the female is assuming a far more dignified place in the interest of the gynecologist than was formerly the case. With the pendulum swinging more and more toward conservatism, the major destructive procedures of the past are being replaced by measures which will preserve the generative organs.

The problem of gonorrhea is an old one, but nevertheless of great importance, involving as it does, the generative functions and threatening the future health of the individual. The disease is the greatest cause of sterility and in the past has been responsible for most of the pelvic surgery in women. There is no doubt that the present treatment of gonorrhea in women is far too radical, and it is time that less destructive procedures be instituted even by those of us who consider ourselves conservative.

SOME STATE AND CITY METHODS

Statistics compiled from the records of the California State Board of Health, for the past nine years, show an average decline in the relative number of cases reported, considering the increase in population. However, the state board figures do not represent the total number of cases of gonorrhea, because 95 per cent of those reported come from the free clinics in California cities. The figures, however, indicate a decline in the incidence of the disease.

If every case of gonorrhea were reported by private physicians, figures would be obtained which would increase our knowledge in regard to the incidence of the disease, indicate spots of increased prevalence in certain sections as well as greatly facilitate the working out of methods in prevention and control.

In the regulations of the California State Board of Health for the prevention of venereal disease, as adopted on October 6, 1917, Rule 1, Note 3, states:

> Any person in attendance on a case of syphilis or gonococcus infection who fails to report the case promptly to the local health officer is guilty of a misdemeanor, punishable by a fine of not less than $25 nor more than $500, or by imprisonment for a term of not more than ninety days, or by both such fine and imprisonment.

The diagnosis of these cases must be verified by smear or serological tests made by a reliable laboratory.

In San Francisco the handling of infectious cases by the city authorities consists in arresting prostitutes—clandestine or otherwise—who are caught plying their trade, or upon the complaint of some individual who claimed to have acquired venereal disease from one such. These individuals are examined at the city jail by a physician and if found to be infected they are sent to the locked ward at San Francisco Hospital and are there treated until three negative smears are returned from the city laboratory. The approximate yearly turnover of patients is two hundred inmates and their average length of time in the hospital is about six weeks. Practically all of the present methods of treatment are employed, but the general trend is toward conservatism.

In certain of our western cities, routine examinations are made of employees of establishments such as restaurants and bakeries, and forced treatment is instituted on employees who have venereal diseases.

PATHOLOGY

The pathology of gonorrhea in women shows itself in an infection of the glands of the cervix, in an infection of the urethra, and less frequently in an infection of the Bartholin's glands. From the cervix the infection travels internally, involving the endometrium, fallopian tubes, and ovaries. In addition to these organs, the cellular tissue, the so-called parametrial, pararectal, and paravesicle tissues are invaded by the gonococcus. There is a marked tendency for the gonococcus to disappear from the tissues spontaneously, and this tendency is more marked in the tissues of the pelvis than from the glandular structures of the cervix and vulva. It is the infection persisting for long periods of time in the urethra and cervix which keeps the internal infection going with the well-known flare-ups during menstruation.

Curtis [1] has shown the importance of reinfection in the cured cervix as a very important element of these so-called flare-ups. Curtis has proven beyond any doubt that the infection is an ascending one from the cervix through the uterine cavity and into the fallopian tubes. He has shown by his ground specimens that gonorrhea can be found in the uterine mucosa in spite of the fact that this is a nonmotile organism which finds its way over a ciliated field against the cilia current.

The writer believes, however, that the pathway over the endometrium is not the only method of access which the gonococcus has to the cellular structures of the pelvic organs. When you consider the rich lymphatic supply of the whole uterine wall and cervix, the path by which most

* Read before the Obstetrics and Gynecology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.